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**To: JUANITA STEPHENS**

CP4-9D13

**Re: 09/921,333 US 5,933,165**

**Attached are search results.**

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Darcy Bates  
STIC-EIC2800  
306-5419  
CP4-9C 18**

Source: [Legal > Area of Law - By Topic > Patent Law > Patents > U.S. Patents > Utility Patents](#) (i)Terms: **patno=5933165** ([Edit Search](#))

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407397 (08) 5933165 August 3, 1999UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT  
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August 3, 1999

Ink jet recording apparatus and method using ink jet head having U- shaped wiring  
**REISSUE:** August 3, 2001 - Reissue Application filed Ex. Gp.: 2853; Re. S.N. 09/921,333  
(O.G. May 28, 2002)

**INVENTOR:** Shirato, Yoshiaki, Yokohama, JP; Takatori, Yasushi, Sagamihara, JP; Hara,  
Toshitami, Tokyo, JP; Nishimura, Yukuo, Sagamihara, JP; Tanaka, Michiko, Ohizumimachi, JP

**APPL-NO:** 407397 (08)**FILED-DATE:** March 17, 1995**GRANTED-DATE:** August 3, 1999**PRIORITY:** April 2, 1979 - 54-39478, Japan (JP)**ASSIGNEE-AT-ISSUE:** Canon Kabushiki Kaisha, Tokyo, JP**LEGAL-REP:** Fitzpatrick, Cella, Harper & Scinto

**PUB-TYPE:** August 3, 1999 - Utility Patent having no previously published pre-grant  
publication (A)

**PUB-COUNTRY:** United States (US)**REL-DATA:**

Addition of Ser. No. 5204689

Addition of Ser. No. 159709, December 1, 1993

Addition of Ser. No. 998053, December 29, 1992

Addition of Ser. No. 711418, June 5, 1991

Addition of Ser. No. 632610, December 27, 1990

Addition of Ser. No. 403860, September 1, 1989

Addition of Ser. No. 188071, April 28, 1988

Addition of Ser. No. 013172, February 9, 1987

Addition of Ser. No. 846472, March 31, 1986

Addition of Ser. No. 750985, July 1, 1985

Division of Ser. No. 639531, August 9, 1984

Continuation of Ser. No. 543224, October 20, 1983

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US 5,933,165

09/921333

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Last update of file: 2003/02/20 (YYYY/MM/DD) 2003-07/UP (basic update)

Search statement 1

?us5933165/pn

\*\* SS 1: Results 1

Search statement 2

?prt fu legalall max

1/1 PLUSPAT - (C) QUESTEL-ORBIT- image  
CPIM (C) Questel-Orbit  
PN - US5933165 A 19990803 [US5933165]  
TI - (A) Ink jet recording apparatus and method using ink jet head having  
U-shaped wiring  
PA - (A) CANON KK (JP)  
PAO - Canon Kabushiki Kaisha, Tokyo [JP]  
IN - (A) HARA TOSHITAMI (JP); NISHIMURA YUKUO (JP); TANAKA MICHIKO (JP);  
SHIRATO YOSHIKI (JP); TAKATORI YASUSHI (JP)  
AP - US40739795 19950317 [1995US-0407397]  
FD - Cont. of US159709 19931201 [1993US-0159709] (Abandoned)  
- Cont. of US998053 19921229 [1992US-0998053] (Abandoned)  
- Divsn of US711418 19910605 [1991US-0711418]  
- Cont. of US632610 19901227 [1990US-0632610] (Abandoned)  
- Cont. of US403860 19890901 [1989US-0403860] (Abandoned)  
- Cont. of US188071 19880428 [1988US-0188071] (Abandoned)  
- Cont. of US013172 19870209 [1987US-0013172] (Abandoned)  
- Cont. of US846472 19860331 [1986US-0846472] (Abandoned)  
- Cont. of US750985 19850701 [1985US-0750985] (Abandoned)  
- Cont. of US639531 19840809 [1984US-0639531] (Abandoned)  
- Cont. of US543224 19831020 [1983US-0543224] (Abandoned)  
- Cont. of US362579 19820329 [1982US-0362579] (Abandoned)  
- Cont. of US132774 19800324 [1980US-0132774] (Abandoned)  
- Division of: US5204689  
PR - US40739795 19950317 [1995US-0407397]  
- JP3947879 19790402 [1979JP-0039478]  
- US15970993 19931201 [1993US-0159709]  
- US99805392 19921229 [1992US-0998053]  
- US71141891 19910605 [1991US-0711418]  
- US63261090 19901227 [1990US-0632610]  
- US40386089 19890901 [1989US-0403860]  
- US18807188 19880428 [1988US-0188071]  
- US1317287 19870209 [1987US-0013172]  
- US84647286 19860331 [1986US-0846472]  
- US75098585 19850701 [1985US-0750985]  
- US63953184 19840809 [1984US-0639531]  
- US54322483 19831020 [1983US-0543224]  
- US36257982 19820329 [1982US-0362579]  
- US13277480 19800324 [1980US-0132774]  
IC - (A) B41J-002/05  
EC - B41J-002/14B5R1

02/26/03

US 5,933,165

09/921333

- B41J-002/16B4  
PCL - ORIGINAL (O) : 347058000  
DT - Basic  
CT - US3177800; US3267485; US3296574; US3393988; US3683212; US3747120;  
US3878519; US3940773; US3965330; US3967092; US4104646; US4131899;  
US4243994; US4251824; US4296421; US4313684; US4317124; US4330787;  
US4334234; US4335389; US4336548; US4337467; US4338611; US4339762;  
US4343968; US4345262; US4353079; US4392907; US4458256; US4463359;  
US4631555; US4723129; DE2115530; DE2532037; DE2843064  
- IEEE Transactions on Industry Applications vol. IA-13, No. 1,  
Jan./Feb., 1977.  
STG - (A) United States patent  
AB - An ink jet recording method includes the steps of providing an ink jet  
recording head having a plurality of discharge openings for  
discharging ink, a plurality of liquid passageways for holding ink and  
a plurality of heat generating members. Each of the heat generating  
members corresponds to a liquid passageway and each heat generating  
member has a pair of electrodes for driving the heat generating member  
individually and the electrodes and corresponding heat generating  
member form a U-shaped wiring portion. The recording head may be  
manufactured using a cutting process. A voltage is applied to selected  
pairs of electrodes for driving selected heat generating members  
individually for providing thermal energy to the ink in the liquid  
passageway for abruptly forming a bubble and discharging ink from the  
discharge opening and recording on a recording medium.

1/1 LGST - (C) LEGSTAT  
PN - US 5933165 [US5933165]  
AP - US 407397/95 19950317 [1995US-0407397]  
DT - US-P  
ACT - 19950317 US/AE-A  
APPLICATION DATA (PATENT)  
{US 407397/95 19950317 [1995US-0407397]}  
- 19990803 US/A  
PATENT  
- 20020528 US/RF  
REISSUE APPLICATION FILED  
20010803  
UP - 2002-24

1/1 CRXX - (C) CLAIMS/RRX  
AN - 3180157  
PN - 5,933,165 A 19990803 [US5933165]  
PA - Canon K K JP  
PT - E (Electrical)  
ACT - 20010803 REISSUE REQUESTED  
ISSUE DATE OF O.G.: 20020528  
REISSUE REQUEST NUMBER: 09/921333  
EXAMINATION GROUP RESPONSIBLE FOR REISSUEPROCESS: 2853

Reissue Patent Number:

UP - 2002-22  
UACT- 2002-05-28

02/26/03

US 5,933,165

09/921333

1/1 PAST - (C) Thomson Derwent  
AN - 200222-001895  
PN - 5933165 A [US5933165]  
DT - A (UTILITY)  
OG - 2002-05-28  
CO - REA  
ACT - REISSUE APPLICATION FILED  
SH - REISSUE APPLICATION FILED

Search statement 2

?file inpadoc

Selected file: INPADOC

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Covers 1968/1973 thru weekly updates (2003-08)  
For information on content, (...)INFO INPD.

Search statement 1

?fam us5933165/pn

1 Patent Groups  
\*\* SS 1: Results 6

Search statement 2

?famstate nonstop

1/6 INPADOC - (C) INPADOC  
PN - DE 3012946 A1 19801023 [DE3012946]  
TI - TROEPFCHENERZEUGUNGSVORRICHTUNG  
IN - SHIRATO YOSHIAKI [JP]; TAKATORI YASUSHI [JP]; HARA TOSHITAMI [JP];  
NISHIMURA YUKUO [JP]; TAKAHASHI MICHIKO [JP]  
PA - CANON KK  
AP - DE 3012946/80-A 19800402 [1980DE-3012946]  
PR - JP 39478/79-A 19790402 [1979JP-0039478]  
IC - B05B-001/00; G01D-015/18; B41J-003/04

1/1 LEGALI - (C) LEGSTAT  
PN - DE 3012946 [DE3012946]  
AP - DE 3012946/80 19800402 [1980DE-3012946]  
DT - DE-P  
ACTE- 19800402 DE/AE-A  
DOMESTIC APPLICATION (PATENT APPLICATION)  
{DE 3012946/80 19800402 [1980DE-3012946]}  
- 19801023 DE/A1 [+]  
LAYING OPEN FOR PUBLIC INSPECTION  
- 19860123 DE/8110 [+]  
REQUEST FOR EXAMINATION PARAGRAPH 44  
- 19860213 DE/8125  
CHANGE OF THE MAIN CLASSIFICATION  
B41J 3/04

02/26/03

US 5,933,165

09/921333

- 19891116 DE/D2 [+]  
GRANT AFTER EXAMINATION  
- 19900517 DE/8364 [+]  
NO OPPOSITION DURING TERM OF OPPOSITION  
UP - 1990-20

2/6 INPADOC - (C) INPADOC

PN - DE 3012946 C2 19891116 [DE3012946]  
TI - TINTENSTRAHLAUFZEICHNUNGSKOPF  
IN - SHIRATO YOSHIKI [JP]; TAKATORI YASUSHI [JP]; HARA TOSHITAMI [JP];  
NISHIMURA YUKIO [JP]; TAKAHASHI MICHIO [JP]  
PA - CANON KK [JP]  
AP - DE 3012946/80-A 19800402 [1980DE-3012946]  
PR - JP 39478/79-A 19790402 [1979JP-0039478]  
IC - B41J-003/04

1/1 LEGALI - (C) LEGSTAT

PN - DE 3012946 [DE3012946]  
AP - DE 3012946/80 19800402 [1980DE-3012946]  
DT - DE-P  
ACTE- 19800402 DE/AE-A  
DOMESTIC APPLICATION (PATENT APPLICATION)  
{DE 3012946/80 19800402 [1980DE-3012946]}  
- 19801023 DE/A1 [+]  
LAYING OPEN FOR PUBLIC INSPECTION  
- 19860123 DE/8110 [+]  
REQUEST FOR EXAMINATION PARAGRAPH 44  
- 19860213 DE/8125  
CHANGE OF THE MAIN CLASSIFICATION  
B41J 3/04  
- 19891116 DE/D2 [+]  
GRANT AFTER EXAMINATION  
- 19900517 DE/8364 [+]  
NO OPPOSITION DURING TERM OF OPPOSITION  
UP - 1990-20

3/6 INPADOC - (C) INPADOC

PN - JP 55132270 A2 19801014 [JP55132270]  
TI - LIQUIDDDRIP JET RECORDING DEVICE  
IN - SHIRATO YOSHIKI; TAKATORI YASUSHI; HARA TOSHITAMI; NISHIMURA YUKIO;  
TAKAHASHI MICHIO  
PA - CANON KK  
AP - JP 39478/79-A 19790402 [1979JP-0039478]  
PR - JP 39478/79-A 19790402 [1979JP-0039478]  
IC - B41J-003/04

4/6 INPADOC - (C) INPADOC

PN - JP 59043314 B4 19841020 [JP84043314]  
IN - SHIRATO YOSHIKI; TAKATORI YASUSHI; HARA TOSHITAMI; NISHIMURA YUKIO;  
TAKAHASHI MICHIO  
PA - CANON KK  
AP - JP 39478/79-A 19790402 [1979JP-0039478]  
PR - JP 39478/79-A 19790402 [1979JP-0039478]  
IC - B41J-003/04 /

02/26/03

US 5,933,165

09/921333

5/6 INPADOC - (C) INPADOC

PN - US 5204689 A 19930420 [US5204689]  
TI - INK JET RECORDING HEAD FORMED BY CUTTING PROCESS  
IN - SHIRATO YOSHIKI [US]; TAKATORI YASUSHI [US]; HARA TOSHITAMI [US];  
NISHIMURA YUKUO [US]; TAKAHASHI MICHIO [JP]  
PA - CANON KK [JP]  
AP - US 711418/91-A 19910605 [1991US-0711418]  
PR - US 632610/90-B1 19901227 [1990US-0632610]  
- US 403860/89-B1 19890901 [1989US-0403860]  
- US 188071/88-B1 19880428 [1988US-0188071]  
- US 13172/87-B1 19870209 [1987US-0013172]  
- US 846472/86-B1 19860331 [1986US-0846472]  
- US 750985/85-B1 19850701 [1985US-0750985]  
- US 639531/84-B1 19840809 [1984US-0639531]  
- US 543224/83-B1 19831020 [1983US-0543224]  
- US 362579/82-B1 19820329 [1982US-0362579]  
- US 132774/80-B1 19800324 [1980US-0132774]  
- JP 39478/79-A 19790402 [1979JP-0039478]  
IC - B41J-002/05

1/1 LEGALI - (C) LEGSTAT

PN - US 5204689 [US5204689]  
AP - US 711418/91 19910605 [1991US-0711418]  
DT - US-P  
ACTE- 19910605 US/AE-A  
APPLICATION DATA (PATENT)  
{US 711418/91 19910605 [1991US-0711418]}  
- 19930420 US/A  
PATENT  
- 19940503 US/CC  
CERTIFICATE OF CORRECTION  
UP - 1994-24

6/6 INPADOC - (C) INPADOC

PN - US 5933165 A 19990803 [US5933165]  
TI - INK JET RECORDING APPARATUS AND METHOD USING INK JET HEAD HAVING  
U-SHAPED WIRING  
IN - SHIRATO YOSHIKI [JP]; TAKATORI YASUSHI [JP]; HARA TOSHITAMI [JP];  
NISHIMURA YUKUO [JP]; TANAKA MICHIO [JP]  
PA - CANON KK [JP]  
AP - US 407397/95-A 19950317 [1995US-0407397]  
PR - US 407397/95-A 19950317 [1995US-0407397]  
- JP 39478/79-A 19790402 [1979JP-0039478]  
- US 159709/93-B1 19931201 [1993US-0159709]  
- US 998053/92-B1 19921229 [1992US-0998053]  
- US 711418/91-A3 19910605 [1991US-0711418]  
- US 632610/90-B1 19901227 [1990US-0632610]  
- US 403860/89-B1 19890901 [1989US-0403860]  
- US 188071/88-B1 19880428 [1988US-0188071]  
- US 13172/87-B1 19870209 [1987US-0013172]  
- US 846472/86-B1 19860331 [1986US-0846472]  
- US 750985/85-B1 19850701 [1985US-0750985]  
- US 639531/84-B1 19840809 [1984US-0639531]  
- US 543224/83-B1 19831020 [1983US-0543224]  
- US 362579/82-B1 19820329 [1982US-0362579]  
- US 132774/80-B1 19800324 [1980US-0132774]



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US 5,933,165

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IC - B41J-002/05

1/1 LEGALI - (C) LEGSTAT

PN - US 5933165 [US5933165]

AP - US 407397/95 19950317 [1995US-0407397]

DT - US-P

ACTE- 19950317 US/AE-A

APPLICATION DATA (PATENT)

{US 407397/95 19950317 [1995US-0407397]}

- 19990803 US/A


PATENT


- 20020528 US/RF

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